



Perspectives on Japan's Response to COVID-19: Report following SEED Study Trip to Japan on August 1-5, 2022

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Medical, public health, emergency management, and political leaders who were met in Japan from August 1 to 5, 2022, during the visit of the Sasakawa USA Emerging Experts Delegation (SEED) largely agreed that Japan conducted an appropriate and effective response to the COVID-19 pandemic. This conclusion draws on ample evidence, such as a relatively low mortality rate (albeit higher than some national neighbors), sustainment of essential COVID and non-COVID-related health and public health services during the pandemic response, high vaccination rates, and minimal impact on essential services and economic activities. The only strict measure implemented by the national government appears to have been the drastic curtailment of foreign business and leisure travel. Even by the middle of 2022, Japan still only allowed vacation travelers

who were with a guided tour group. Notably, Japan's government did not have the authority to order the quarantine of exposed individuals, closure of restaurants and other businesses, wearing of facemasks by the public in public settings, or pandemic vaccination, and yet Japan as a population nearly universally took up such precautions when advised to do so by public health authorities.

The people of Japan appear voluntarily to have done as much as they could individually, as families, and as social and occupational groups to protect those who were most vulnerable – primarily the elderly and those with existing health conditions – and prevent over-burdening the healthcare system. The Japanese people voluntarily eliminated unnecessary travel and social activities, changed their own behaviors to maintain adequate social distance, and reduced respiratory droplet transmission by wearing face masks outside the home, as well as at times inside the home. Anecdotally, several people living in Tokyo remarked that elderly family members in rural parts of Japan instructed them to avoid visiting despite risks associated with social isolation and the deeply embedded expectation that grown children should visit their parents regularly. This reluctance by elderly family members to have visitors may have been a combination of genuine fear of the disease and the social pressure among neighbors to avoid the perception of “breaking the rules.” Unlike many other countries, including the United States, the perception of individual risk from a pandemic threat and perception of social risk appear to have been aligned very closely in Japan. Whatever the root or predominant motivation, the results of individual and societal actions were the effective implementation of public health guidelines, even when initial scientific evidence was sparse and difficult to interpret. This societal commitment to public health protections allowed Japan to continue to conduct most business operations and keep public schools and colleges open.

Many restaurants, theaters, shops, and other entertainment venues closed for a period, despite the lack of any official orders, though this closure may have been unique to Tokyo or other urban and densely populated settings. During the SEED visit, all businesses were open as usual, restaurants were crowded, but almost everyone continued to wear a face mask when not actively eating or drinking. Authorities reported that over 95 percent of the population received the primary two-dose vaccination within six months of the vaccine being available, although at the time of the

SEED visit only a third of middle-aged adults were getting first or second booster doses. Booster vaccine hesitancy was reportedly due to a mixture of intolerance of side effects, a sense that the primary societal goals of protecting the elderly had been met and extreme protections were no longer necessary, and perception of a reduced threat from variants.

Despite indicators of Japan's success in mitigating the health and societal impacts of COVID-19, Japan experienced several challenges, for which national and prefectural planning and capacity building could be considered. Among those challenges, Japanese officials might examine the causes for slow acquisition of vaccine, limited use of diagnostic testing, limited surveillance for confirmed cases, harmonization of national leadership, and questions about ascertainment of deaths due to COVID-19. Existing legal, regulatory, and policy frameworks could solve such gaps in national public health emergency response, recognizing that some new authorities and response coordination mechanisms were in development at the time of the SEED visit. However, solving gaps may require some significant but highly targeted legislative changes, which many experts in Japan also recognized. In support of the conclusions from Japan's internal, COVID-19 review panel, which had been published around the time of the SEED visit, Japan may benefit from examining and revising several aspects of the country's national emergency strategies. Specifically, Japan may want to focus on and consider ways to improve the utilization of novel vaccines and therapeutics, rapid deployment of a national public health surveillance strategy for novel infectious disease threats, the use of laboratory testing for diagnosis and case ascertainment, as well as improvements to Japan's overall public health data systems.

National Emergency Medical Countermeasure Strategy

Despite the planning and preparations in earlier decades for a pandemic caused by influenza, Japan's national government encountered significant challenges during COVID-19. With respect to vaccines, Japan's national drug regulatory authority required safety evidence generated through clinical studies in a uniquely Japanese population, which significantly delayed ordering and acquisition of available vaccines. Negotiations with the vaccine sponsor eventually satisfied those requirements, but without a pre-pandemic pathway to obtain such data, the wait for regulatory approval and restriction to a limited number of vaccine options prevented Japan from beginning COVID-19 vaccination until February 2021. Additionally, the biomedical industry in Japan, both

private and public components combined, does not appear to have sufficient capacity to develop or manufacture a “homegrown” vaccine. Various leaders engaged with during the SEED visit recognized that development of a national biomedical industry for emergency vaccines would need significant investment, coordination, and time, requiring more scientists and laboratories overall, and a “warm” manufacturing base that keeps Japanese scientists in the country. Alternatively or in addition to such long-term goals, near-term objectives could be to provide more flexibilities to national regulatory authorities so that new vaccines can be imported much faster; continue to participate in and provide leadership for the COVID-19 and post-COVID-19 global frameworks for vaccine development, manufacturing, and distribution; and conduct additional work with partner nations and drug sponsors to pre-establish methods for collecting and reporting the types of data needed to authorize emergency use of vaccines for the Japanese population.

In addition to the challenges with vaccines, several medical experts in Japan pointed to the challenges obtaining and administering COVID-19 therapeutics. While the Japanese government authorized use of several therapeutics, providers struggled with very tight control over distribution and cumbersome systems for acquisition. An overall lack of diagnostic testing also prevented optimal use of COVID-19 therapeutics, even though several of Japan’s highest quality research centers were active in clinical trials and new drug development. Development of novel therapeutics is a component of the biomedical industry that appears to be well-developed in Japan, which may represent an opportunity for national investment in training, infrastructure, and systems that will allow Japan to be at the forefront of creating new therapies for novel pathogens and future pandemic threats. Of note, Japan’s health systems did not appear to suffer any lack of personal protective or critical care equipment. In fact, the extent to which Japan was able to provide individual face masks and utilize highly advanced treatments, such as extracorporeal membrane oxygenation, may serve as model systems for other countries.

National Public Health Surveillance Strategy

While reliable polymerase chain reaction (PCR) and other types of testing were quickly available in Japan, experts in Japan indicated that the overall distribution and capacity of the national public health laboratory system and lack of integration with clinical laboratories prevented the national government and prefectures from accurately tracking case counts and COVID-19-specific

mortality. Official public health testing is available at the centrally managed public health centers, of which there is only one, or at best a few, in each prefecture. As has happened in many other countries, the overall funding for routine public health services and staffing has decreased in Japan over the decades, virtually eliminating the capacity to provide a massive surge in case investigation, field epidemiology, and laboratory testing. The overall, absolute capacity to conduct public health testing using PCR methods is severely limited; there are not enough qualified labs or laboratorians for mass infectious disease surveillance. Clinical laboratory testing, where available, was not necessarily integrated with public health surveillance programs. Compounding the lack of capacity and coordination between health and public health systems, many met with during the SEED visit indicated that the public health system is far behind the technological development typical in other sectors of Japan, primarily relying today on telephone facsimile transmission of case reports and manual data entry at prefectural health centers. In considering lessons from COVID-19, Japan could consider major investments in technology, training, and planning that expands overall public health surveillance and testing capacity and quality, connecting the public health centers and health systems to surveillance hubs through online platforms that automate as much data collection as possible. Some of the roadblocks to such a system include Japan's information regulation and privacy laws, which likely need to be reviewed and updated to take advantage of modern information security modalities.

Self-, community-, and work-based testing appeared to be minimal, which is a concern during mass spread of a pathogen with significant asymptomatic or pre-symptomatic transmission, such as SARS-CoV-2. In Japan, at the time of the SEED visit in August 2022, rapid diagnostic tests were available commercially at minimal cost, but there were no pathways or guidelines to officially report, count, or act on such test results. What was unclear is whether the national public health authority could have developed, and if the population would have accepted, at-home isolation and treatment for minimally symptomatic cases that were "confirmed" by home testing. Without a comprehensive national testing and treatment strategy that includes criteria for self- and family-care, the health system would be over-burdened and routine health services would be impossible to sustain. Japan's public health authorities and political leadership appear to have recognized the potential impacts of mass testing, opting instead for a highly constrained "cluster investigation" approach. While helpful in supporting public health messages, that approach had questionable

effects on the speed at which the virus spread through communities. Implementing a national emergency infectious disease testing protocol may require significant public education and population-level behavior changes with respect to minor illnesses, suggesting that planning and communication would need to begin as soon as possible to prepare for the next pandemic. Looking ahead, with the possibility that COVID-19 will continue to circulate globally, potentially with new and unpredictable variants, some steps could be taken now to implement more public health testing and non-hospital case management.

National Public Health Emergency Leadership

At the time of the SEED visit, the Japanese National Diet and national health authorities were in the midst of formally revising their national public health emergency leadership strategy, which included implementation of a form of command and control within the Cabinet Office. Importantly, a system for national leadership must have both scientific and political legitimacy; such as system requires significant partnerships and evolution of mechanisms to reach out to, and receive feedback from, the scientific community, healthcare experts, and the general public, with parallel evolution of “command and control” at the prefectural level. At the time of the SEED visit, some of this appeared to be happening already, modeled after the national program for radiation safety. Future pandemic preparedness may require development and publication of an additional national strategy or framework, using legislation and executive authorities to delineate and organize key agencies, infrastructure, and social systems into a cohesive plan that can be exercised and perfected over time. Japan, as with the rest of the world, continues to engage in a “natural exercise” for public health emergency response against COVID-19, with the more recent addition of monkeypox viral disease, and the ever-present threat of novel or reemerging infectious diseases. The recent emergence of a cluster of vaccine-derived polio virus infections in the United States highlights how unpredictable the world of viruses remains.

Related to national leadership, the private sector in Japan appears to have had a relatively strong and overall effective response to COVID-19 that helped to preserve economic prosperity, to the extent that such was possible during a global crisis. Corporations adopted remote work options for their employees, which can be examine closely as a way to sustain productivity, reduce social stressors, and reduce the climate impacts of business operations while continuing to support the

overall implementation of sound public health measures. This approach could benefit the population in the next pandemic, but also potentially result in reduced seasonal transmission of other, common infectious diseases, such as influenza and other respiratory viruses.

Overall, experts agreed that Japan responded effectively to COVID-19, in great part due to the culture of social responsibility and willingness of individuals to adopt respiratory infectious disease precautions without formal enforcement. At the outset of the pandemic, the Japanese people set national goals that included preventing mortality among those who were most vulnerable, preventing disastrous impacts on the national health system, and sustaining the national economy; they appear to have succeeded at those goals. Experts in Japan and the SEED delegates discussed several lessons to be learned for future pandemic preparedness and response. Among those, a more comprehensive and adaptive strategy for rapidly importing and distributing emergency medical countermeasures (MCMs), primarily vaccines, therapeutics, and laboratory tests, would be beneficial in the short-term. Such a strategy may also require additional internal authorities and mechanisms to access novel MCMs from the global marketplace, with complementary international strategies and relationships. National guidance and support to modernize and harmonize operational partnerships between the public sector, private hospitals, and the commercial sector could be another key goal, with concomitant (and game-changing) investment in public health information and laboratory technologies. Using existing models for public safety and risk mitigation, a national approach to public health preparedness and response would ensure that all stakeholders are ready to execute their roles and responsibilities. Japan has already made strong commitments to international leadership for pandemic preparedness and universal health coverage, which can be leveraged for domestic, regional, and global health security.

CAPT Perdue wrote in his personal capacity. The observation, opinions, and recommendations in this paper are solely attributable to the author and do not represent any policy or positions of the U.S. government or any federal agency.



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